CILCO EXHIBIT 2.0

PREPARED REBUTTAL TESTIMONY OF
TERRY N. TATE
ON BEHALF OF
CENTRAL ILLINOIS LIGHT COMPANY
DOCKET NO. 00-0699

Q. Please state your name and business address.

A. Terry N. Tate, 300 Liberty Street, Peoria, Illinois, 61602.

Q. Are you the same Terry N. Tate who submitted prepared direct testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. Staff has submitted the testimony of two witnesses, Roy Buxton and James Spencer. I will respond to the testimony of Mr. Buxton.

Q. What is your understanding of Mr. Buxton's testimony?

A. Mr. Buxton sponsors Staff's report to the Commission dated October 17, 2000, and supports the entry of an order by the Commission in exactly the same form it was originally entered.

Q. Do you agree with Mr. Buxton's position?

A. No, I do not. While I certainly agree with many of the things Mr. Buxton says, I do not agree with many of his conclusions, including his conclusion that the proposed order is not vague in many respects.

Q. Please elaborate.

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A. Mr. Buxton argues that the requirement to consider the rights of property owners is not vague or difficult to implement. He then explains that this requirement can be met by giving reasonable opportunity to property owners to raise objections before removing vegetation. In my judgment, this begs the question. Mr. Buxton's proposed order does not indicate what the rights of the property owners are, or how their objections should be handled, particularly when their objections consist of total opposition to any tree trimming whatsoever. The proposed order suggests to property owners that they have the right to determine whether and the extent to which tree trimming should occur. Another practical problem with Mr. Buxton's proposals is that many complaints are not received until after tree trimming has started. Mr. Buxton's approach would require that tree trimming come to a stop until after the complaint process is completed, which could take weeks or months. A general directive to consider the rights of property owners is so vague and all-encompassing that it will almost certainly result in claims that CILCO has violated the rules of the Commission.

Q. What are the possible consequences of a utility's violation of a Commission rule?

A. Section 5-201 of the Act specifies that if a public utility fails to comply with any rule or order of the Commission, the utility can be sued and can be required to pay punitive damages if the failure was willful. Therefore, it is important that any order entered in this proceeding not impose unnecessary or non-specific requirements that could expose a utility to liability in attempting to meet those requirements.

Q. What is your response to Mr. Buxton's discussion of tree health and tree aesthetics?

A. Mr. Buxton acknowledges that many decisions involving these issues can require subjective judgments, some of which are "less obvious" than others. For example, Mr. Buxton points out that "CILCO could elect to prune a healthy tree that provides significant benefits to the property where it grows, even though a decision based solely on efficient work production might favor tree removal." He also states that the trimming cycle should be a balance between efficiency and tree aesthetics. In my judgment, these statements reaffirm the vagueness of Mr. Buxton's approach, and reinforce the need for the changes I recommended in my direct testimony. Mr. Buxton's suggestion that a tree provides "significant benefits" to property serves to highlight the claims for damages that could arise under his recommended order. I agree with Mr. Buxton's statement that the Commission should not interfere with lawsuits brought under the Act, but I also believe that the Commission should not attempt to establish a set of rules that would tend to replace the legal rights and obligations under existing law and easement contracts, and give rise to additional claims.

Q. Does CILCO have a standard form of easement agreement?

A. Yes. CILCO Exhibit 2.1 is a copy of CILCO's standard electric easement. The easement gives CILCO the right to cut, trim, remove or control by any means trees that interfere or threaten to interfere with operation and maintenance of electric lines. In my layman's view, the order proposed by Mr. Buxton would diminish the rights provided under these easement contracts.

Q. Are there other reasons you oppose the broad approach recommended by Mr. Buxton?

A. Yes. It is my understanding of Section 8-505.1 of the Act that utilities are required to follow the most current guidelines of the International Society of Arboriculture and the American National Standards Institute (ANSI). Section 8-505.1 also specifies the notice that must be given in advance of trimming activities. The legislature has determined the rules under which the utilities should operate, and the Commission's order should not impose new or different standards and requirements.

Q. Please describe CILCO Exhibits 2.2 and 2.3

A. CILCO Exhibit 2.2 is a copy of the ANSI standards developed with the National Arborist Association for trimming of trees, and specifically utility pruning. CILCO Exhibit 2.3 is a copy of the Safety requirements in connection with tree trimming activities. These are some of the current standards that are applicable under Section 8-505.1. There is nothing in Exhibit 2.2 that imposes aesthetic considerations on utility tree trimming activities. Further, the safety requirements imposed under Exhibit 2.3 may require trimming in a manner that precludes the consideration of aesthetics, tree history and other factors in the proposed order.

Q. Please summarize how you believe the Commission should approach the tree trimming issues raised in this proceeding.

A. I believe the issues can and should be addressed in a simple and straight-forward manner. Staff and the Commission are concerned that CILCO has allowed tree trimming activities to decline, and they want CILCO to return to a four-year cycle not later than December 31, 2002. CILCO has agreed to do this and has no objection to an order that affirms this

requirement. CILCO is also willing to maintain records and make reports as set forth in my direct testimony, and to include these requirements in the order. These provisions will assure the reasonable operation and maintenance of CILCO's distribution system and the protection of the public. Nothing more is needed or appropriate, and the Commission should not allow this proceeding to be used to impose subjective new requirements dealing with aesthetics and property rights.

Q. Does this complete your prepared rebuttal testimony?

A. Yes, it does.

CILCO EXHIBIT 2.1

Form 251D

ELECTRIC EASEMENT

For the consideration of ONE ($1.00) DOLLAR and other good and valuable considerations, the undersigned does hereby Convey and Warrant unto the CENTRAL ILLINOIS LIGHT COMPANY, its successors and assigns, the easement and right to erect, operate, maintain, renew, enlarge upon, and remove, electric lines consisting of poles, crossarms, insulators, conductors, ground wires, cables and counterpoises, and other equipment appurtenant thereto, including signal and communication lines and equipment, for the transmission and distribution of electric energy in, over, upon, under and across certain parcel or parcels of land in the Township of ____, County of ____, State of Illinois, described as follows, to-wit:

A part of

PIN #

Together with the right of ingress and egress over lands of Grantor for the purpose of constructing said lines, or repairing or renewing the same, and the right from time to time at no additional cost to cut, trim, remove, or control trees, brush, or other vegetation by any means that interfere or threaten to interfere with the construction, operation and maintenance of said lines, including but not limited to, the use of EPA-approved herbicides.

It is expressly understood that no trees, buildings, or other structures will be placed on said easement without the written consent of the CENTRAL ILLINOIS LIGHT COMPANY.

Reasonable compensation shall be made to the Grantor for damages to crops, fences or other tangible property of the Grantor caused by the construction, operation, maintenance, renewal and removal of CENTRAL ILLINOIS LIGHT COMPANY facilities.

Subject to the foregoing, this easement shall be binding upon the heirs, successors, administrators and assigns of the parties hereto.

DATED this _____ day of _____, 19____.

Prepared for Company
By: _____

(COMPANY NAME)

By: _____

_____ President

ATTEST:
By: _____
_____ Secretary

STATE OF _____
COUNTY OF _____

I, the undersigned, a Notary Public in and for said County in the State aforesaid do hereby certify that _____ and _____ to me personally known as the _____ President and _____ Secretary, respectively, of _____, a corporation, and also known to me as the persons whose names are affixed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered said instrument as the free and voluntary act of said corporation for the uses and purposes therein set forth and that said _____ Secretary affixed the corporate seal of said corporation thereto, and that they were duly authorized to execute the same by the Board of Directors of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal thereto this _____ day of _____, 19____.

_____
Notary Public

CILCO EXHIBIT 2.2

ANSI®
A300-1995

American National Standard
for Tree Care Operations –

Tree, Shrub and Other Woody Plant Maintenance – Standard Practices

Secretariat
National Arborist Association, Inc.

Approved June 1, 1995
American National Standards Institute, Inc.

American National Standard

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Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

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Contents

Foreword (This foreword is not part of American National Standard A300-1995.)

This standard was developed under the procedures of the American National Standards Institute by Accredited Standards Committee on Tree, Shrub and Other Woody Plant Maintenance Operations, A300. The National Arborist Association is the secretariat of A300.

Accredited Standards Committee A300 was approved June 28, 1991. The Committee was organized to develop a consensus performance standard for persons engaged in the maintenance of trees, shrubs and other woody plants. The Committee includes representatives from the residential and commercial tree care industry; the utility, municipal, and federal sectors; the landscape and nursery industries; as well as other interested organizations.

The A300 standard currently addresses tree pruning practices only. Subcommittees have been formed to address Construction Protection; Cabling, Bracing, and Guying; Soil Modification/Fertilization; Lightning Protection; Equipment Calibration; Tree Growth Regulators; and Shrub, Vine, and Other Woody Plant Pruning.

Specifications for tree work should be written and administered by an arborist. An arborist is a professional who possesses the technical competence through experience and related training to provide for or supervise the management of trees and other woody plants in the residential, commercial, and public landscape. This A300 standard offers basic performance standards. It is not a guideline to illustrate how to prune trees.

This standard has been drafted to address pruning specification requirements across all geographic areas. The users of this standard must interpret the wording based on their knowledge of the growth habits of certain tree species within a given environment.

Suggestions for improvement of this standard should be forwarded to: A300 Secretariat, c/o National Arborist Association, P.O. Box 1094, Amherst, NH 03031.

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee on Tree, Shrub and Other Woody Plant Maintenance Operations, A300. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the A300 committee had the following members:

Tim Johnson, Chairman
(Artistic Arborist, Inc.)
Brian Barnard, Secretary
(National Arborist Association)

Organization Represented	*Name of Representative*
American Association of Nurserymen	Craig J. Regelbrugge
	Ben Bolusky (Alt.)
American Forests	Cheryl Kollin
American Society of Consulting Arborists	Donald F. Blair
American Society of Landscape Architects	Karen Niles
Asplundh Tree Expert Company	James D. Beam
	Dave Morrison (Alt.)
Associated Landscape Contractors of America	Preston Leyshon

Organization Represented	*Name of Representative*
The Davey Tree Expert Company	Edward Johnson
	Karl Warnke (Alt.)
The F.A. Bartlett Tree Expert Company	Greg Daniels
International Society of Arboriculture	John C. Britton
	Bill Kruidenier (Alt.)
Municipal Arborists & Urban Foresters Society	Cathy Riley-Hall
National Arborist Association	Paul McFarland
	Robert Felix (Alt.)
National Park Service	Robert DeFeo
	Dick Hammerschlag (Alt.)
Professional Grounds Management Society	John Gillan
Society of Municipal Arborists	Dale Gaasland
U.S. Forest Service	Rita Schoeneman
	Marcia Sneed (Alt.)
Utility Arborist Association	Jeff Smith
	Mike Watson (Alt.)

American National Standard for Tree Care Operations –

Tree, Shrub and Other Woody Plant Maintenance – Standard Practices

1 Scope, purpose, and application

1.1 Scope

This document presents performance standards for the care and maintenance of trees, shrubs, and other woody plants.

1.2 Purpose

It is intended as a guide for federal, state, municipal, and private authorities including property owners, property managers, and utilities in the drafting of their maintenance specifications and should be adopted by them in whole or in part.

1.3 Application

This standard is intended to apply to any person or entity engaged in the business, trade, or performance of repairing, maintaining, or preserving trees.

1.4 Implementation

Specifications for tree work should be written and administered by an arborist.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

ANSI Z60.1-1990, *Nursery stock*

ANSI Z133.1-1994, *Tree care operations – Pruning, trimming, repairing, maintaining, and removing trees, and cutting brush – Safety requirements*

29 CFR 1910, *General industry*[1)]

29 CFR 1910.268, *Telecommunications*[1)]

29 CFR 1910.269, *Electric power generation, transmission, and distribution*[1)]

29 CFR 1910.331 – 335, *Electrical safety-related work practices*[1)]

3 Definitions

3.1 anvil-type pruning tool: Pruning tool that has a straight sharp blade that cuts against a flat metal cutting surface. (See *hook and blade-type pruning tool.*)

3.2 arborist: A professional who possesses the technical competence through experience and related training to provide for or supervise the management of trees and other woody plants in the residential, commercial, and public landscape.

3.3 boundary reaction zone: A separating boundary between wood present at the time of wounding and wood that continues to form after wounding.

3.4 branch: A secondary shoot or stem arising from one of the main axes (i.e., trunk or leader) of a tree or woody plant.

[1)] Available from U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210.

3.5 branch collar: Trunk tissue that forms around the base of a branch between the main stem and the branch or a branch and a lateral. As a branch decreases in vigor or begins to die, the branch collar becomes more pronounced.

3.6 branch bark ridge: Raised area of bark in the branch crotch that marks where the branch wood and trunk wood meet.

3.7 callus: Undifferentiated tissue formed by the cambium layer around a wound.

3.8 cambium: Dividing layer of cells that forms sapwood (xylem) to the inside and bark (phloem) to the outside.

3.9 climbing spurs: Sharp, pointed devices affixed to the climber's leg used to assist in climbing trees (also known as *gaffs, hooks, spurs, spikes, climbers*).

3.10 closure: The process of woundwood covering a cut or other tree injury.

3.11 crotch: The angle formed at the attachment between a branch and another branch, leader, or trunk of a woody plant.

3.12 crown: The leaves and branches of a tree or shrub; the upper portion of a tree from the lowest branch on the trunk to the top.

3.13 crown cleaning: The removal of dead, dying, diseased, crowded, weakly attached, low-vigor branches, and watersprouts from a tree's crown.

3.14 crown raising: The removal of the lower branches of a tree in order to provide clearance.

3.15 crown reduction: The reduction of the top, sides, or individual limbs by the means of removal of the leader or longest portion of a limb to a lateral no less than one-third of the total diameter of the original limb removing no more than one-quarter of the leaf surface.

3.16 crown thinning: The selective removal of branches to increase light penetration and air movement, and to reduce weight.

3.17 cut: The exposed wood area resulting from the removal of a branch or portion thereof.

3.18 decay: Degradation of woody tissue caused by biological organisms.

3.19 espalier pruning: A combination of cutting and training branches that are oriented in one plane, formally or informally arranged, and usually supported on a wall, fence, or trellis. The patterns can be simple or complex, but the cutting and training is precise. Ties should be replaced every few years to prevent girdling the branches at the attachment site.

3.20 facility: Equipment or structure used to deliver or provide protection for the delivery of an essential service such as electricity.

3.21 girdling roots: Roots located above- or belowground whose circular growth around the base of the trunk or over individual roots applies pressure to the bark area, ultimately restricting sap flow and trunk/root growth, frequently resulting in reduced vitality or stability of the plant.

3.22 heading: Cutting a currently growing or one-year-old shoot back to a bud, or cutting an older branch or stem back to a stub or lateral branch not sufficiently large enough to assume the terminal role. Heading should rarely be used on mature trees.

3.23 heartwood: The inactive xylem (wood) toward the center of a stem or root that provides structural support.

3.24 hook and blade pruning tool: A hand pruner that has a curved, sharpened blade that overlaps a supporting hook; in contrast to an *anvil-type pruning tool.*

3.25 horizontal plane (palms): An imaginary level line that begins at the base of live frond petioles.

3.26 lateral: A branch or twig growing from a parent branch or stem.

3.27 leader: A dominant upright stem, usually the main trunk. There can be several leaders in one tree.

3.28 limb: Same as *branch*, but larger and more prominent.

3.29 lopping: See *heading.*

3.30 mycelium: Growth mass of fungus tissue found under bark or in rotted wood.

3.31 obstructing: To hinder, block, close off, or be in the way of; to hinder or retard a desired effect or shape.

3.32 parent branch or stem: The tree trunk; or a large limb from which lateral branches grow.

3.33 petiole: The stalk of a leaf.

3.34 phloem: Inner bark tissue through which primarily carbohydrates and other organic compounds move from regions of high concentration to low.

3.35 pollarding: Pollarding is a training system used on some large-growing deciduous trees that are severely headed annually or every few years to hold them to modest size or to give them and the landscape a formal appearance. Pollarding is not synonymous with topping, lopping, or stubbing. Pollarding is severely heading some and removing the other vigorous water sprouts back to a definite head or knob of latent buds at the branch ends.

3.36 precut or precutting: The two-step process to remove a branch before the finished cut is made so as to prevent splitting or bark tearing into the parent stem. The branch is first undercut, then cut from the top before the final cut.

3.37 pruning: Removal of plant parts.

3.38 qualified line clearance tree trimmer: A tree worker who, through related training and on-the-job experience is familiar with the techniques in line clearance and has demonstrated his/her ability in the performance of the special techniques involved. This qualified person may or may not be currently employed by a line clearance contractor.

3.39 qualified line clearance tree trimmer trainee: Any worker undergoing line-clearance tree trimming training, who, in the course of such training, is familiar with the techniques in line clearance and has demonstrated his/her ability in the performance of the special techniques involved. Such trainees shall be under the direct supervision of qualified personnel.

3.40 qualified person or personnel: Workers who, through related training, or on-the-job experience, or both, are familiar with the techniques and hazards of arboriculture work including training, trimming, maintaining, repairing, or removing trees, and the equipment used in such operations.

3.41 qualified tree worker, person, or personnel: A person(s) who, through related training and on-the-job experience, is familiar with the hazards of pruning, trimming, repairing, maintaining, or removing trees and with the equipment used in such operations, and has demonstrated ability in the performance of the special techniques involved.

3.42 qualified tree worker trainee: Any worker undergoing on-the-job training who, in the course of such training, is familiar with the hazards of pruning, trimming, repairing, maintaining, or removing trees, with the equipment used in such operations, and has demonstrated ability in the performance of the special techniques involved. Such trainees shall be under the direct supervision of qualified personnel.

3.43 remote/rural: Areas associated with very little human activity, land improvement, or development.

3.44 sapwood: The active xylem (wood) that stores water and carbohydrates, and transports water and nutrients; a wood layer of variable thickness found immediately inside the cambium, comprised of water-conducting vessels or tracheids and living plant cells.

3.45 shall: As used in this standard, denotes a mandatory requirement.

3.46 should: As used in this standard, denotes an advisory recommendation.

3.47 stub: An undesirable short length of a branch remaining after a break or incorrect pruning cut is made.

3.48 stubbing: See *heading*.

3.49 target: A person, structure, or object that could sustain damage from the failure of a tree or portion of a tree.

3.50 terminal role: Branch that assumes the dominant vertical position on the top of a tree.

3.51 thinning: The removal of a lateral branch at its point of origin or the shortening of a branch or stem by cutting to a lateral large enough to assume the terminal role.

3.52 throwline: A small, lightweight line with a weighted end used to position a climber's rope in a tree.

3.53 topping: See *heading*.

3.54 tracing: Shaping a wound by removing loose bark from in and around a wound.

3.55 urban/residential: Locations normally associated with human activity such as populated areas including public and private property.

3.56 utility: An entity that delivers a public service such as electricity or communication.

3.57 utility space: The physical area occupied by the utility's facilities and the additional space required to ensure its operation.

3.58 wound: The opening that is created any time the tree's protective bark covering is penetrated, cut, or removed, injuring or destroying living tissue. Pruning a live branch creates a wound, even when the cut is properly made.

3.59 woundwood: Differentiated woody tissue that forms after initial callus has formed around the margins of a wound. Wounds are closed primarily by woundwood.

3.60 xylem: Wood tissue; active xylem is called *sapwood*, inactive xylem is called *heartwood*.

3.61 young tree: A tree young in age or a newly installed tree.

4 Safety

4.1 Tree maintenance shall only be performed by qualified tree workers, who through related training, or on-the-job experience, or both, are familiar with the practices and hazards of arboriculture, and the equipment used in such operations.

4.2 This standard shall not take precedence over arboricultural safe work practices.

Operations shall comply with applicable Occupational Safety and Health Administration (OSHA) standards (see clause 2), ANSI Z133.1, as well as state and local regulations.

5 Tree pruning

5.1 Purpose

The purpose of this clause is to provide specifications for tree pruning.

5.2 Pruning practices

5.2.1 Reasons for pruning

The reasons for tree pruning may include, but are not limited to, reducing hazards, maintaining or improving tree health and structure, improving aesthetics, or satisfying a specific need such as: removing diseased, dead, dying, decayed, interfering or obstructing branches; training young trees; utility line clearance; or specialty tasks as defined in this standard. Before pruning, the primary objective should be clearly defined. That objective should be accomplished in the manner most beneficial to the health of the tree.

Pruning practices for agricultural, horticultural production or silvicultural purposes are exempt from this standard.

5.2.2 When to prune

To obtain the defined objective, the growth cycles of individual species as well as the type of pruning to be performed should be considered.

5.2.3 Tree inspection

Before beginning work and while work is being performed, a qualified person shall visually inspect each tree. If a condition is observed that requires additional attention, this condition should be brought to the attention of an immediate supervisor or the person responsible for authorizing the work.

5.2.4 Tools and equipment

5.2.4.1 Pruning tools used in making pruning cuts shall be kept adequately sharpened to result in final cuts with a smooth surface and firmly attached remaining adjacent bark.

5.2.4.2 Hook and blade pruning tools should be used; not anvil-type pruning tools.

5.2.4.3 Climbing spurs should not be used when climbing trees, except as specified elsewhere in this standard. Climbing spur use is permissible on tree removals and in emergencies such as aerial rescue.

5.2.4.4 Equipment and work practices that damage bark, cambium, live palm tissue, or any combination of these, should be avoided.

5.2.5 Pruning cuts

5.2.5.1 A thinning cut should be the preferred type of cut to make.

5.2.5.2 A thinning cut shall consist of the removal of a lateral branch at its point of origin or the shortening of a branch or stem by cutting to a lateral large enough to assume the terminal role.

5.2.5.3 A heading cut should rarely be used on mature trees, yet may be appropriate for

specific purposes such as, but not limited to, training young trees; pollarding, shaping terminal flowering trees, storm damage repair, etc.

5.2.5.4 A heading cut should consist of cutting a currently growing or one-year-old shoot back to a bud, or cutting an older branch or stem back to a stub or lateral branch not sufficiently large enough to assume the terminal role.

5.2.5.5 When removing a lateral branch at its point of origin on the trunk or parent limb, the final cut shall be made in branch tissue close to the trunk or parent limb, without cutting into the branch bark ridge or collar, or leaving a stub. (See figure 1.)

5.2.5.6 When removing a leader or length of a branch, the angle of the cut should bisect the angle between the branch bark ridge and an imaginary line perpendicular to the leader being removed. (See figure 2.)

5.2.5.7 When removing a dead branch, the final cut shall be made just outside the collar of live tissue. If the collar has grown out along the branch stub, only the dead stub should be removed. The live collar shall remain intact and uninjured.

5.2.5.8 To prevent damage to the parent limb when removing a branch with a narrow branch attachment, the final cut should be made from the bottom of the branch up. (See figure 3.)

5.2.5.9 Cut limbs shall be removed from the crown upon completion of the pruning, or at times when the tree would be left unattended or at the end of the work day.

5.2.6 Wound treatment

5.2.6.1 Wound dressings and tree paints should not be used to cover pruning wounds, except when specified for disease, borer, mistletoe, sprout control, or cosmetic reasons. If wound dressings or paints are used for cosmetic or other reasons, then materials nontoxic to the cambium layer shall be used, and only a light coating shall be applied to the wound surface.

5.2.6.2 When repairing bark wounds, only damaged or loose bark should be removed, disturbing a minimal amount of live tissue.

5.2.6.3 Cavities shall not be filled or treated if the boundary reaction zones would be disturbed.

5.3 Mature tree pruning

5.3.1 General

The following specifications should be used with pruning objectives.

5.3.1.1 Pruning cuts shall be made in accordance with 5.2.5.

5.3.1.2 Tree branches shall be removed in such a manner so as not to cause damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be precut to avoid splitting or tearing of the bark. (See figure 1.) Where necessary, ropes or other equipment should be used to lower large branches or portions of branches to the ground.

5.3.1.3 When a branch is cut back to a lateral, not more than one-fourth of its leaf surface should be removed. The lateral remaining should be large enough to assume the terminal role.

5.3.1.4 Not more than one-fourth of the foliage on a mature tree should be removed within a growing season.

5.3.1.5 Upon completion of pruning a mature tree, one-half of the foliage should remain evenly distributed in the lower two-thirds of the crown and individual limbs.

5.3.2 Size specifications

A minimum or maximum diameter of branches to be removed should be specified to establish the extent of pruning, such as: the removal of branches 3 in (7.5 cm) in diameter and greater, or; the removal of branches 2 in (5 cm) in diameter and greater, etc.

5.3.3 Pruning objectives

Pruning objectives should be established prior to beginning any pruning operation.

5.3.3.1 Hazard reduction pruning

Hazard reduction pruning is recommended when the primary objective is to reduce the danger to a specific target caused by visibly defined hazards in a tree. Hazard reduction pruning should consist of one or more of the maintenance pruning types.

5.3.3.2 Maintenance pruning

Maintenance pruning is recommended when the primary objective is to maintain or improve tree

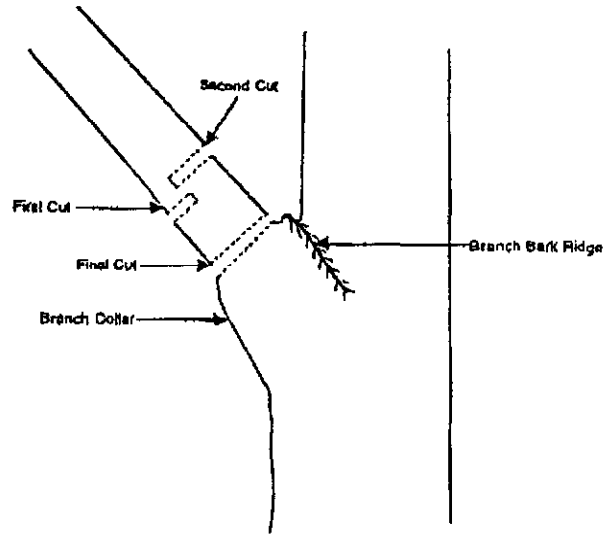

Figure 1 – Removing a large lateral branch requires two preliminary cuts before the final cut

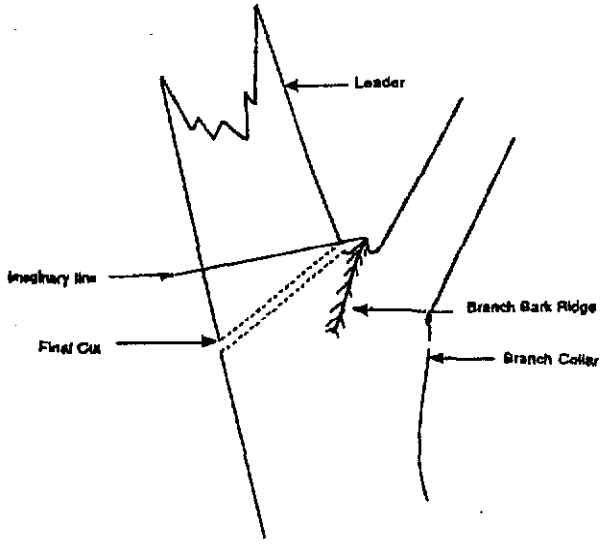

Figure 2 – When cutting back to a lateral, bisect the angle between the branch bark ridge and an imaginary line perpendicular to the leader or the branch being removed

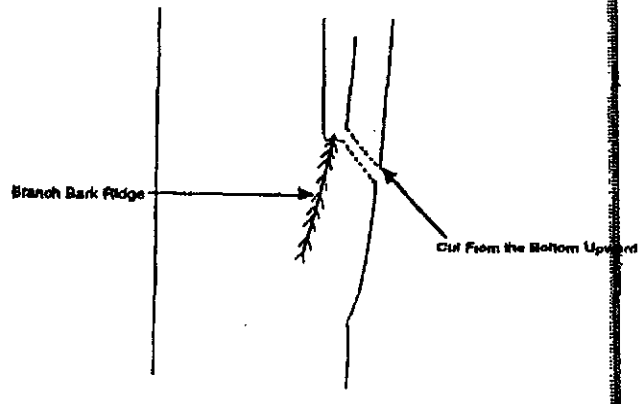

Figure 3 – When removing a branch with a narrow branch attachment, cut from the bottom upward

health and structure, and includes hazard reduction pruning. Maintenance pruning should consist of one or more of the following pruning types:

a) *Crown cleaning:* Crown cleaning shall consist of the selective removal of one or more of the following items: dead, dying, diseased, weak branches and watersprouts from a tree's crown;

b) *Crown thinning:* Crown thinning shall consist of the selective removal of branches to increase light penetration, air movement, and reduce weight;

c) *Crown raising:* Crown raising shall consist of the removal of the lower branches of a tree in order to provide clearance;

d) *Crown reduction (crown shaping):* Crown reduction reduces the height and/or spread of a tree. Consideration should be given to the ability of a species to sustain this type of pruning;

e) *Vista pruning:* Vista pruning is selective thinning of framework limbs or specific areas of the crown to allow a specific view of an object from a predetermined point;

f) *Crown restoration:* Crown restoration pruning should improve the structure, form, and appearance of trees that have been severely headed, vandalized, or storm damaged.

5.4 Young tree pruning

5.4.1 At planting

When a young tree is planted, dead, broken, and split branches should be removed. A central trunk or leader or well-spaced multiple trunks or leaders (as most appropriate for the species and specimen) should be developed by removing competing leaders and removing, heading, or thinning laterals on vigorously growing branches that compete with the selected leader(s). Branches should be retained on the lower trunk to increase taper.

5.4.2 During the first three years after planting

A strong scaffold branch structure should be developed by selecting the primary scaffold branches. To improve the scaffold structure, branches that are crossing, have included bark, or interfere with the scaffold branches should be removed. Scaffold branches should be properly spaced. For deciduous shade trees that will reach or exceed 40 ft (12 m) in height at maturity, the recommended spacing between primary scaffold branches is approximately 18 in (46 cm). For smaller species, 6 to 8 in (15 to 20 cm) would be adequate.

5.4.3 Between four and six years after planting

The development of a good, structurally sound scaffold branch system should be continued by selective thinning of or on branches and removing dead, interfering, split, and broken branches. Large-growing branches with narrow angles of attachment shall be removed from the trunk or canopy. Lower branches shall be pruned (crown raising) so as not to interfere with human needs where appropriate.

5.5 Specialty training systems

5.5.1 Espalier

Espalier pruning is a combination of cutting and training branches that are oriented in one plane; formally or informally arranged; and usually supported on a wall, fence, or trellis. The patterns can be simple or complex but the cutting and training is precise. Ties should be replaced every few years to prevent girdling the branches at the attachment site.

5.5.2 Pollarding

Pollarding is a training system used on some large-growing deciduous trees that are severely headed annually or every few years to hold them to modest size or to give them and the landscape a formal appearance. Pollarding is not synonymous with topping, lopping, or stubbing. Pollarding is severely heading some and removing the other vigorous water sprouts back to a definite head or knob of latent buds at the branch ends.

5.6 Palm pruning

5.6.1 Palm pruning should be performed when fronds, fruit, or loose petioles may create a dangerous condition.

5.6.1.1 Live healthy fronds, initiating at an angle of 45° or greater from the horizontal plane, should not be removed.

5.6.1.2 Fronds removed should be severed close to the petiole base without damaging living trunk tissue.

5.6.1.3 Palm peeling (shaving) should consist of the removal of the dead frond bases only, at the point they make contact with the trunk without damaging living trunk tissue.

5.7 Utility pruning

5.7.1 General

The purpose of utility pruning is to remove branches in order to prevent the loss of service, prevent damage to equipment, avoid impairment and uphold the intended usage of the facility/utility space.

5.7.1.1 Only a qualified line clearance tree trimmer or qualified line clearance tree trimmer trainee should be assigned to line clearance work in accordance with ANSI Z133.1, 29 CFR 1910.331 – 335, 29 CFR 1910.268, or 29 CFR 1910.269.

5.7.1.2 Utility pruning operations are exempt from requirements in 5.2.3.

5.7.2 Utility crown reduction pruning

5.7.2.1 Urban/residential environment

5.7.2.1.1 Cuts should be made in accordance with 5.2.5 and 5.2.6.

5.7.2.1.2 A minimum number of cuts should be made to accomplish the purpose of facility/utility pruning. The natural shape of the tree should be considered.

5.7.2.1.3 Trees directly under and growing into the facility/utility should be removed or pruned. Such pruning should be done by removing entire branches or by removing branches that have laterals growing into (or, once pruned, will grow into) the facility/utility space.

5.7.2.1.4 Trees growing along the side and growing into or toward the facility/utility space should be pruned by removing entire branches. Branches that, when cut, will produce sprouts that would grow into facilities and/or utility space should be removed.

5.7.2.1.5 Branches should be cut to laterals or the parent branch and not at a preestablished clearing limit.

5.7.2.2 Remote/rural environment

5.7.2.2.1 Climbing spurs

Climbing spurs may be used when limbs are more than throw line distance apart, or when the bark is thick enough to prevent damage to the cambium, or there are no other practical means of climbing the tree.

5.7.2.2.2 Remote locations

Utilities must often maintain facilities/corridors at remote locations. In such locations, it may be appropriate to use mechanical pruning equipment.

5.7.2.2.3 Mechanical pruning

Cuts should be made close to the main stem, outside of the branch bark ridge and branch collar. Precautions should be taken to avoid stripping or tearing of bark or excessive wounding.

5.7.3 Emergency service restoration

During a utility declared emergency, utilities must restore service as quickly as possible in accordance with ANSI Z133.1, 29 CFR 1910.331 – 335, 29 CFR 1910.268, or 29 CFR 1910.269. At such times it may be necessary, because of safety and the urgency of service restoration, to deviate from the use of proper pruning techniques as defined in this standard. Following the emergency, corrective pruning should be done as necessary.

Annex A
(informative)

Bibliography

Tree pruning guidelines, 1994[2)]

[2)] Available from the International Society of Arboriculture, 6 Dunlap Court, P.O. Box GG, Savoy, IL 61874.

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ANSI
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Revision of
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Pruning, Trimming, Repai[illegible]ming, and Removing Trees, and Cutting Brush – Safety Requirements

Secretariat
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